RIVERA®

FS7M

External MIDI Interface

OWNERS MANUAL

Version 1.0
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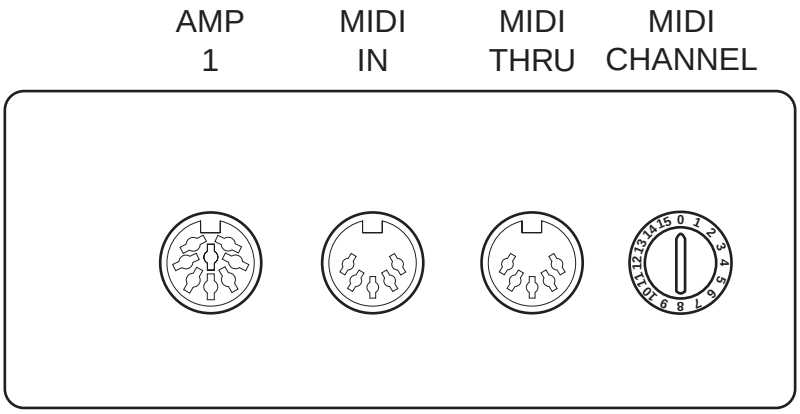
INTRODUCTION

The FS7M External MIDI interface replaces the FS7 footswitch and allows MIDI control of the amplifier. You cannot use the footswitch and the interface at the same time.

CONNECTORS ON THE PANEL



AMP 1

If you are using the interface to control a single amp, plug it in here. The amplifier supplies power to the interface through this connector, so an additional power supply is not required.

Use a cable with 8 pin male DIN connectors on each end. You should have received a cable with your unit. Be careful with this cable. It IS NOT commonly available in most music or electronic stores.

If it ever becomes necessary to replace it, you can order one from Rivera or make it yourself. It does not require shielded cable, and the pins are wired straight through. (1-1, 2-2 etc.)

AMP 2

The FS7M has two amplifier connectors. The second connector can be used to control a second amplifier if grounding issues are addressed. If you connect the audio path of two amplifiers together and also connect the footswitch control path, a ground loop will be created. This ground loop may produce a bad hum.

There are many different techniques to eliminate this problem. Solving ground loop problems can sometimes be tricky depending on the details of your setup. This manual does not provide instructions for fixing ground loops. If you have a question about a specific combination of amps, please contact the factory, we will try to help.

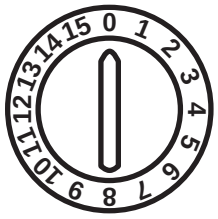
MIDI IN

Standard MIDI input. Use this to connect any standard MIDI controller.

MIDI THRU

Standard MIDI thru, passes data from the MIDI IN to additional MIDI gear.

The Midi Channel Selector Switch



The Interface uses a rotary switch to select the MIDI channel. It is a high quality switch, and is much easier to use than the DIP switches used by some manufacturers.

Unfortunately, it is numbered in a way that can create confusion.

As shown on the diagram, the switch is numbered from 0-15.
Most MIDI devices define the MIDI channels as 1-16

So, it is necessary to add 1 to the number on the switch to get the MIDI channel

SWITCH POSITION 5 = MIDI CHANNEL 6

So, why is the switch labeled wrong?
In the world of electronics and programming, it is not labeled wrong.
It selects one of 16 four digit binary numbers, 0-15 is 0000-1111 in binary.
It is labeled correctly for what it does.
Internally, MIDI gear uses channels 0-15.
Long ago, MIDI manufacturers decided that musicians would be uncomfortable.
with channel zero, so they decided to add a 1 to the actual value.

Counting From Zero

As you may or may not know, computer programmers start counting from zero instead of one.

Most people would count a list of items like this:

One, two, three, I have three items.

A programmer would do the same if he was counting the items, but if he was using numbers as names he would name the first item "item number zero," the second would be called "item number one" and the third "item number two." Programmers call this process enumerating the items.

Why do programmers do this?

Here is an example:

If you are standing in front of your house, how far do you have to walk to get to your neighbor? You have to walk ONE house unit away.

How far do you have to walk to get to your OWN house? Since you are already standing in front of your house, you have to walk ZERO house units away.

Zero is the starting point, you move from zero some number of units.

Programmers frequently deal with lists of things. The same logic applies to these lists. If you are looking at the first item in a list, how far do you have to move to look at the second? You have to move ONE unit.

How far do you have to move to look at the first item? Since you are already looking at it, you move ZERO.

Another way of looking at it is to ask the question, "How many single digit numbers are there?" There are 10. They are: 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9. You don't get to the number 10 until you add another digit. Programmers can't afford to be wasteful, they use ALL of the digits, especially zero.

This is also the root of the controversy over the year 2000. If you start counting at zero, 2000 is the millennium.

MIDI is a computer communication protocol, and internally, it starts from zero.
MIDI Channels are actually numbered 0-15 and Program Changes are numbered 0-127.

But, since most people are not comfortable counting from zero, MOST MIDI instruments add an extra one and define MIDI Channels 1-16 and Program Changes 1-128. NOT ALL MIDI instruments do this!

We debated long and hard over which philosophy to adopt. In the end we chose to follow the de-facto standard and number from one. We believed that this decision would result in less confusion and fewer problems.

One problem we could not avoid was the numbering of the MIDI Channel Selector switch. The manufacturer of the switch numbered it from 0-15. These are in fact the actual numbers the switch uses. We had no control over the labeling.

The unfortunate result of this mismatch is that you have to set the MIDI Channel Selector Switch to 0 to select MIDI Channel 1.

MIDI Control

Overview

The MIDI interface takes the place of the FS7 pedal, and controls all functions that were originally controlled by the pedal. No more. No less. In other words, the interface does not provide any additional control beyond that which the FS7 provides.

The interface responds to MIDI Program Change Commands only. It can be controlled by the Rivera Head Master foot-operated MIDI controller or by any standard MIDI controller.

Combinations And Separate Functions
Two types of commands are provided - Combinations and Separate Functions.

Combinations
When the amp receives a Combination Command, ALL MIDI controllable values are changed.

For example Program Change 5 selects:
- Channel 2
- Ninja Boost OFF
- Boost ON

Separate Functions
Program Change commands for separate functions have also been defined.
Separate functions change ONE value only, leaving all others unchanged.

Contact Me

My name is Mike Peterson
My email address is mikep@rivera.com

I designed the FS7M and wrote the manual.
If you have any questions, comments, praise or criticism, please let me know.

FS7M MIDI PROGRAM CHANGES
SINGLE AMP COMBINATIONS

BOOST	NINJA BOOST	CHANNEL	
OFF	OFF	2	1
OFF	OFF	1	2
OFF	ON	2	3
OFF	ON	1	4
ON	OFF	2	5
ON	OFF	1	6
ON	ON	2	7
ON	ON	1	8

SEPARATE FUNCTIONS

TOGGLE CHANNEL	65
TOGGLE NINJA BOOST	66
TOGGLE BOOST	67

FS7M MIDI PROGRAM CHANGES
DUAL AMP COMBINATIONS

AMP 2			AMP 1			
BOOST	NINJA BOOST	CHANNEL	BOOST	NINJA BOOST	CHANNEL	
OFF	OFF	2	OFF	OFF	2	1
OFF	OFF	2	OFF	OFF	1	2
OFF	OFF	2	OFF	ON	2	3
OFF	OFF	2	OFF	ON	1	4
OFF	OFF	2	ON	OFF	2	5
OFF	OFF	2	ON	OFF	1	6
OFF	OFF	2	ON	ON	2	7
OFF	OFF	2	ON	ON	1	8
OFF	OFF	1	OFF	OFF	2	9
OFF	OFF	1	OFF	OFF	1	10
OFF	OFF	1	OFF	ON	2	11
OFF	OFF	1	OFF	ON	1	12
OFF	OFF	1	ON	OFF	2	13
OFF	OFF	1	ON	OFF	1	14
OFF	OFF	1	ON	ON	2	15
OFF	OFF	1	ON	ON	1	16
OFF	ON	2	OFF	OFF	2	17
OFF	ON	2	OFF	OFF	1	17
OFF	ON	2	OFF	ON	2	19
OFF	ON	2	OFF	ON	1	20
OFF	ON	2	ON	OFF	2	21
OFF	ON	2	ON	OFF	1	22
OFF	ON	2	ON	ON	2	23
OFF	ON	2	ON	ON	1	24
OFF	ON	1	OFF	OFF	2	25
OFF	ON	1	OFF	OFF	1	26
OFF	ON	1	OFF	ON	2	27
OFF	ON	1	OFF	ON	1	28
OFF	ON	1	ON	OFF	2	29
OFF	ON	1	ON	OFF	1	30
OFF	ON	1	ON	ON	2	31
OFF	ON	1	ON	ON	1	32

FS7M MIDI PROGRAM CHANGES
DUAL AMP COMBINATIONS

AMP 2			AMP 1			
BOOST	NINJA BOOST	CHANNEL	BOOST	NINJA BOOST	CHANNEL	
ON	OFF	2	OFF	OFF	2	33
ON	OFF	2	OFF	OFF	1	34
ON	OFF	2	OFF	ON	2	35
ON	OFF	2	OFF	ON	1	36
ON	OFF	2	ON	OFF	2	37
ON	OFF	2	ON	OFF	1	38
ON	OFF	2	ON	ON	2	39
ON	OFF	2	ON	ON	1	40
ON	OFF	1	OFF	OFF	2	41
ON	OFF	1	OFF	OFF	1	42
ON	OFF	1	OFF	ON	2	43
ON	OFF	1	OFF	ON	1	44
ON	OFF	1	ON	OFF	2	45
ON	OFF	1	ON	OFF	1	46
ON	OFF	1	ON	ON	2	47
ON	OFF	1	ON	ON	1	48
ON	ON	2	OFF	OFF	2	49
ON	ON	2	OFF	OFF	1	50
ON	ON	2	OFF	ON	2	51
ON	ON	2	OFF	ON	1	52
ON	ON	2	ON	OFF	2	53
ON	ON	2	ON	OFF	1	54
ON	ON	2	ON	ON	2	55
ON	ON	2	ON	ON	1	56
ON	ON	1	OFF	OFF	2	57
ON	ON	1	OFF	OFF	1	58
ON	ON	1	OFF	ON	2	59
ON	ON	1	OFF	ON	1	60
ON	ON	1	ON	OFF	2	61
ON	ON	1	ON	OFF	1	62
ON	ON	1	ON	ON	2	63
ON	ON	1	ON	ON	1	64

SEPARATE FUNCTIONS

AMP 1	TOGGLE CHANNEL	65
	TOGGLE NINJA BOOST	66
	TOGGLE BOOST	67
AMP 2	TOGGLE CHANNEL	68
	TOGGLE NINJA BOOST	69
	TOGGLE BOOST	70